



## INTRODUCTION

Transient data can be animated through EnSight's flipbook capability. During the flipbook load process, all parts (both model and created) are automatically rebuilt (if necessary) using the data from each time step in sequence. At each step, a graphical "page" is created and stored in memory. When the flipbook is active, the pages are displayed in order as rapidly as the hardware allows (although you can slow it down). You can also step through pages manually.

The graphical pages can be one of two types: *object* or *image*. An object flipbook saves each page as 3D geometry so you can continue to manipulate the model (e.g. rotate or zoom) during playback. However, for very large models and/or long sequences, the memory requirements can be substantial. In this case, you can create image flipbooks that save only the image pixels for each page. Although the size of each page is now fixed, you cannot change the viewing parameters without reloading the flipbook.

This article covers using the flipbook capability for transient data (and assumes that you have successfully loaded your transient data). See [How To Create a Flipbook Animation](#) for more details on flipbooks. EnSight's keyframe animation capability also works with transient data and provides a flexible mechanism for synchronizing your available time steps with the output animation frames. See [How To Create a Keyframe Animation](#) for more information.

## BASIC OPERATION

Prior to loading the flipbook, you should create all parts of interest (e.g. clips, contours, isosurfaces, etc). These parts will automatically be recalculated for each time step. To load a transient flipbook:

1. Click the Flipbook Animation icon in the Feature Icon Bar.



2. Be sure the Load Type is set to Transient.

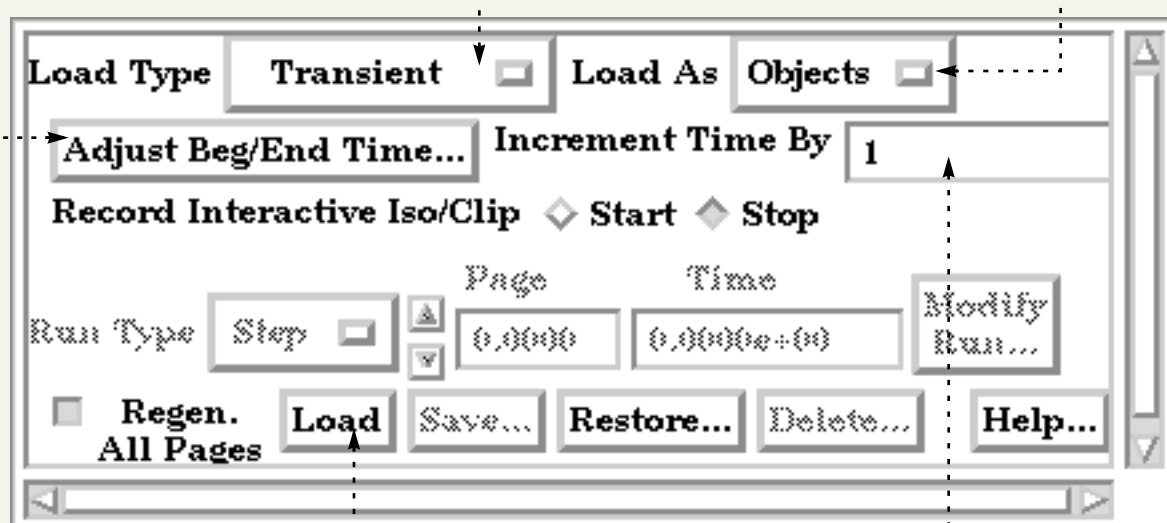
3. Select the desired page type (Object or Image).

4. If desired, reset the current beginning and ending time. (Clicking this button will replace the Flipbook Quick Interaction area with the [Solution Time Quick Interaction](#) area. When you are done, do step 1 again).

5. If desired, you can specify a time increment for the load.

For example, using 0.5 would create pages representing time steps 0, 0.5, 1, 1.5, 2, 2.5, etc. The in-between steps are calculated by linear interpolation.

6. Click Load.





The Load Flipbook Status dialog will open and show the progress of the load. You can cancel the load by clicking the Cancel button and retain all the pages loaded to that point. Once the load is complete, you can run the flipbook:

1. Set the Run Type to Auto.

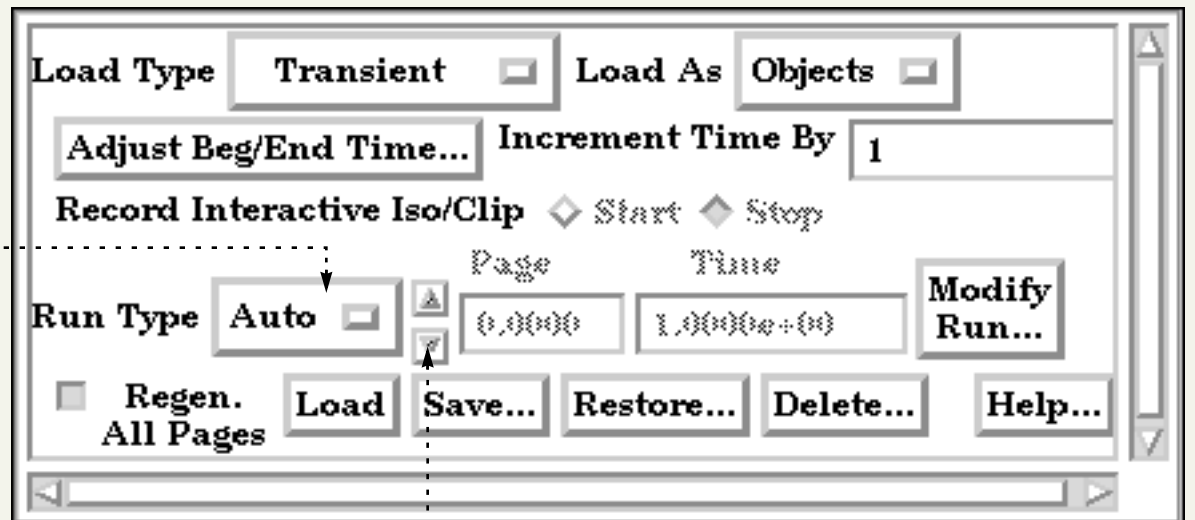
2. Move the mouse cursor into the Graphics Window.

You can also step through the pages manually:

1. Set the Run Type to Step.

2. Click the up/down buttons to change pages. You can also enter values in the Page or Time fields (and press return) to jump to a specific page.

3. When done, set the Run Type to Off.



You can control flipbook playback range, speed, and cycle behavior:

1. Click the Modify Run... button to open the Auto Run Settings dialog.

2. To change the range of displayed pages, enter new values in the Show From Page and/or Show To Page fields (and press return).

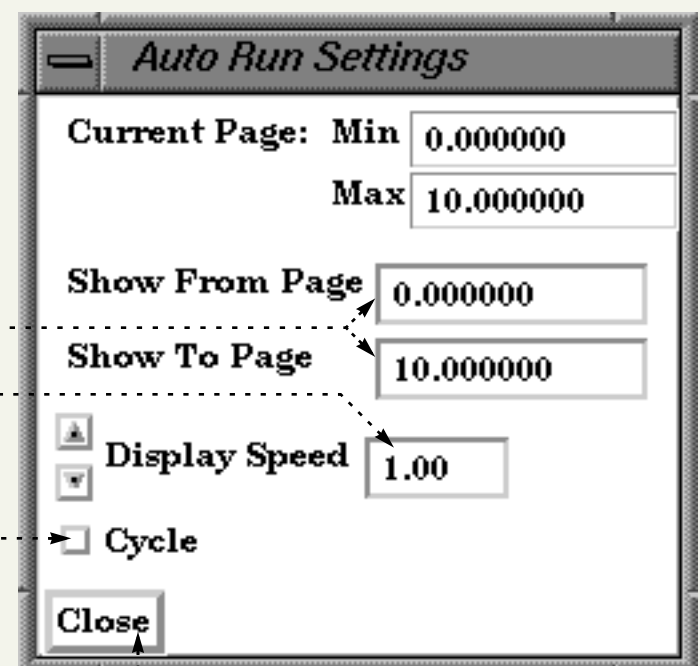
3. To change the display speed, enter a new value in the Display Speed field (and press return).

A speed of 1.00 represents "full" hardware speed with no delays; a value of 0.5 is half of full speed.

4. To cycle the page display, click Cycle.

Cycle will replay the pages in reverse order when the last page is reached.

5. Click Close when done.





## Save and Restore

If you created an Image type flipbook, you can save the sequence of images to a disk file and later restore them. The images are packed into a single binary file for quick reading and writing. To save an Image flipbook:

1. Click **Save...** in the **Flipbook Quick Interaction Editor**.
2. Enter the desired file name in the **File Selection dialog**.

To restore an Image flipbook:

1. Click **Restore...** in the **Flipbook Quick Interaction Editor**.
2. Enter the desired file name in the **File Selection dialog**.

## Delete

Any type of flipbook can be deleted:

1. Click **Delete...** in the **Flipbook Quick Interaction Editor**.
2. Confirm the deletion.

All memory associated with the flipbook is freed.

## ADVANCED USAGE

If you have created transient particle traces (pathlines) and set up a particle trace animation, you can also load a flipbook and show the particle trace animation synchronized with the flipbook. The trace animation will automatically play through the time range of the flipbook and stay in sync with the flipbook pages. See [How To Create Particle Traces](#) and [How To Animate Particle Traces](#) for more information.

On some Silicon Graphics machines, it is possible to output a flipbook animation in MPEG format. If available, two new options are listed in the Save Flipbook Pages to dialog: MPEG 320x240 and MPEG 640x480. Note that these formats cannot be restored into EnSight.

## OTHER NOTES

Since both object and image flipbooks build pages from the current set of parts based on their current attributes, if you make a change (such as color a part by a different variable or create a new part), you must reload the flipbook. There are exceptions. With an object flipbook, you can make a part invisible while the flipbook is running.

## SEE ALSO

[How To Load Transient Data](#)

User Manual: [Flipbook Animation](#), [Solution Time](#)